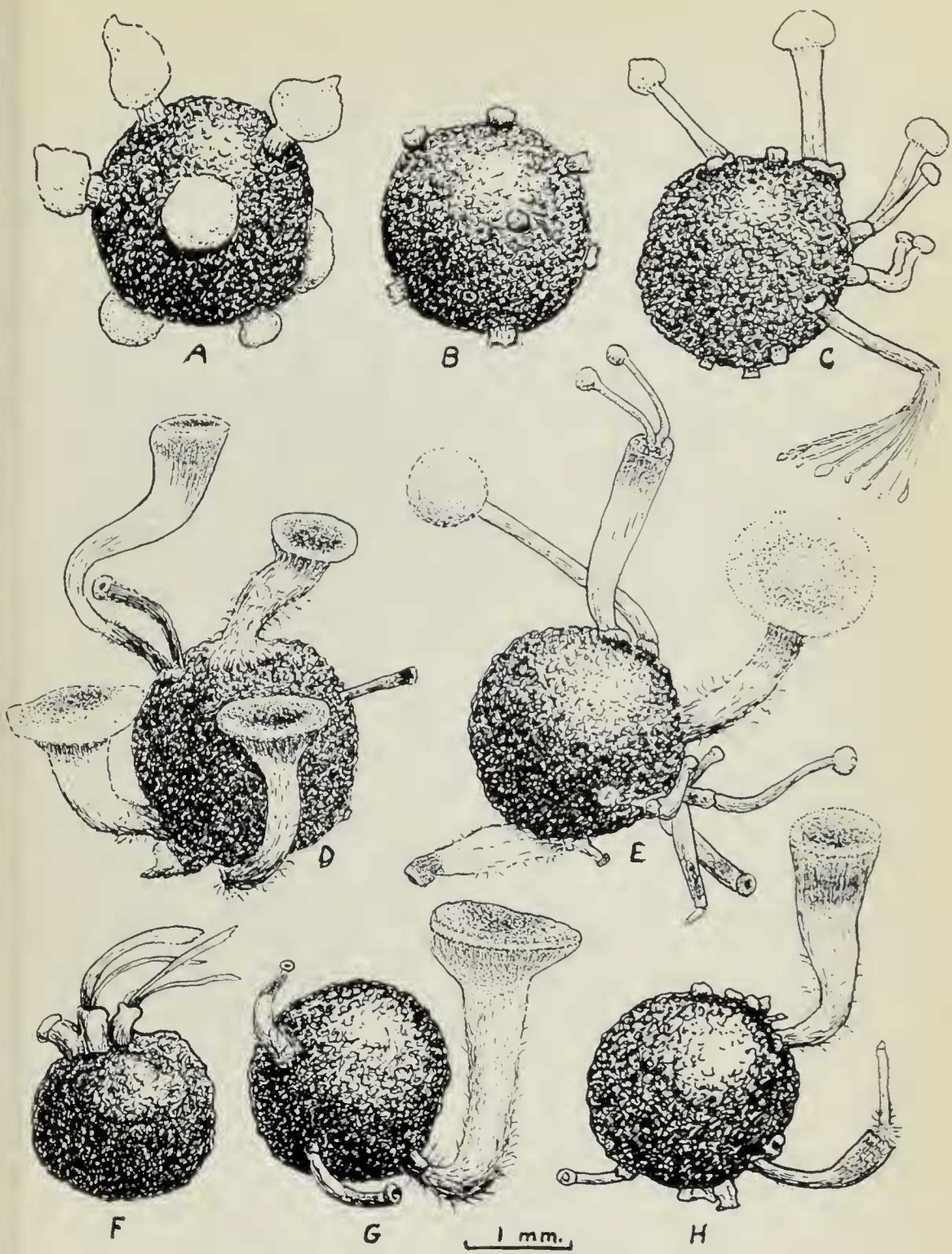

FIG. 1. *Symphyosirinia galii* ; on mericarps of *Galium palustre*, Wheatfen Broad, Surlingham, Norfolk.

A. Primary synnemata.
B. Bases of senile primary synnemata.
C. Secondary synnemata.
D. Apothecia.
E. Apothecia and secondary synnemata.
F. Immature secondary synnemata.
G. Apothecia.
H. Immature apothecia (one with a secondary synnema growing from its apex).

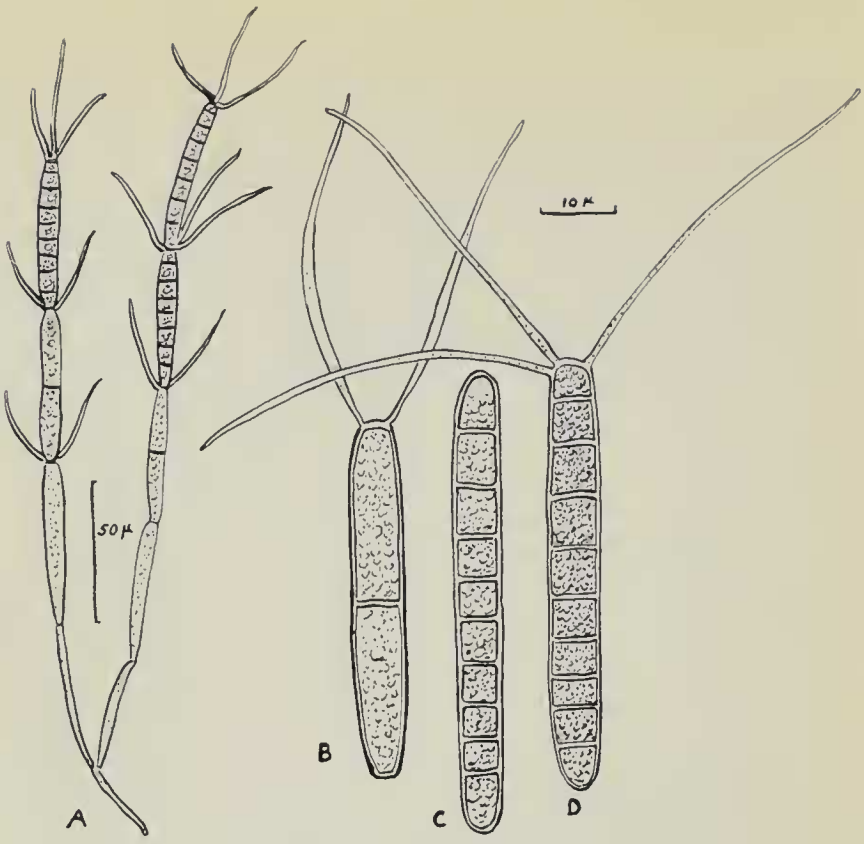

FIG. 2. *Symphyosirinia galii.*

A. Conidia on branching hyphae of a synnema.
B. Immature 1-septate conidium with two setae.
C. Mature conidium which has shed its setae.
D. Mature conidium with three setae.

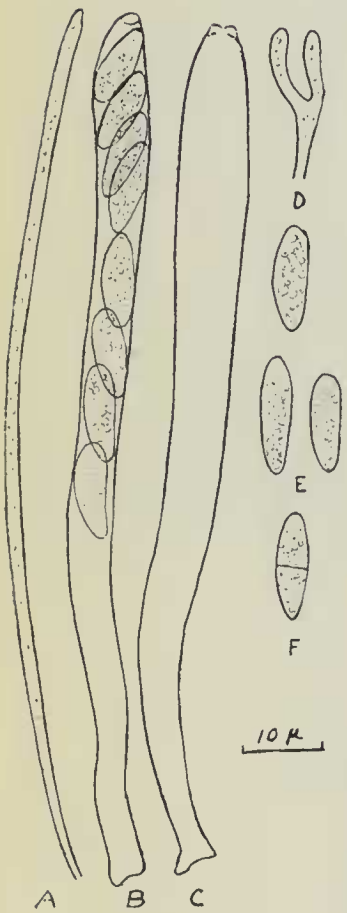

FIG. 3. *Symphyosirinia galii.*

A. Paraphysis.
B. Ascus with spores.
C. Empty ascus.
D. Forked tip of a paraphysis.
E. Ascospores as they are seen most commonly.
F. 1-septate ascospore.

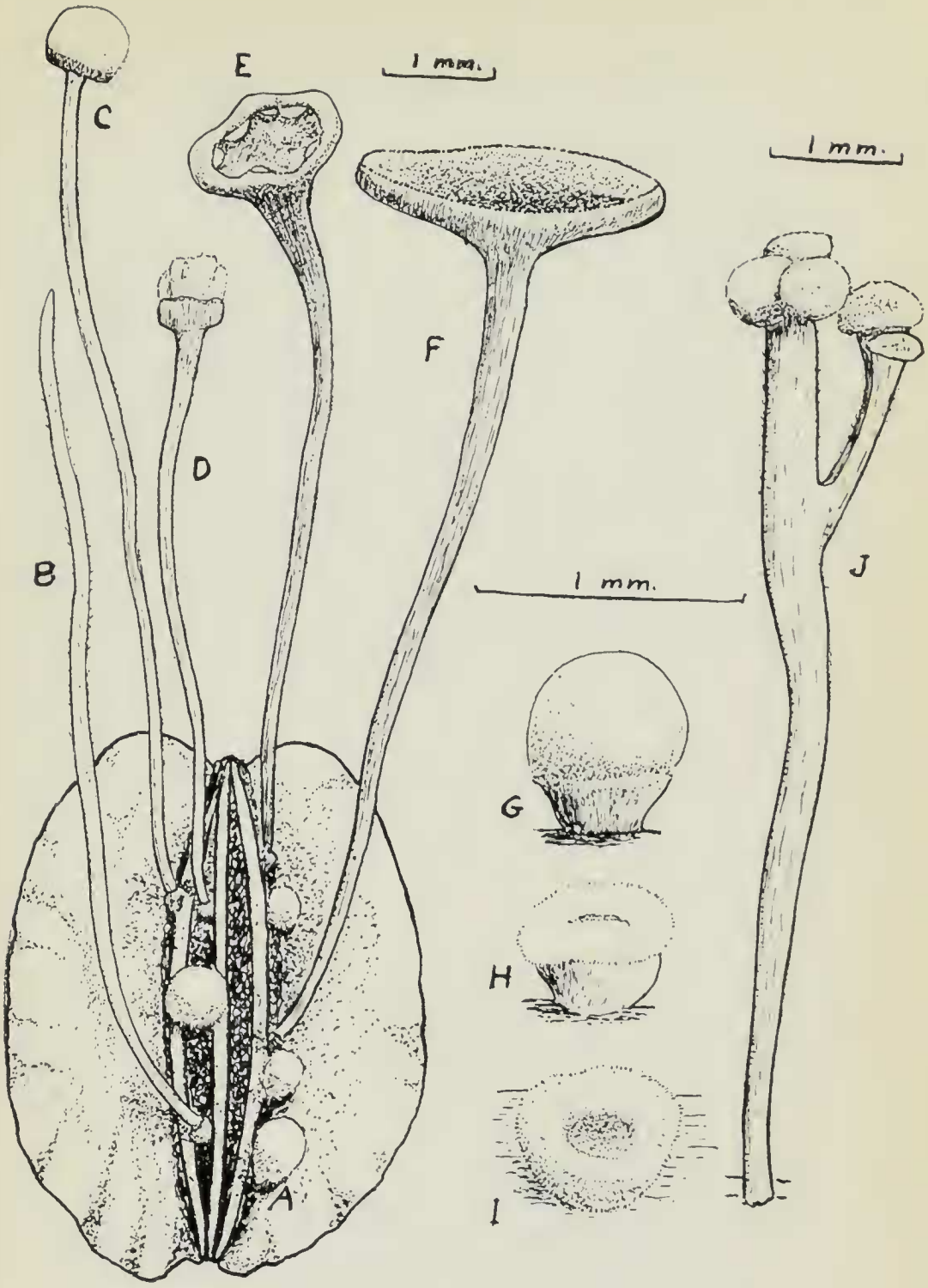

FIG. 4. *Symphyosirinia angelicae*.

A. Primary synnema.
B. Immature secondary synnema.
C. Typical secondary synnema sporulating.
D. Secondary synnema beginning to form an apothecium.
E. Apothecium with synnematal conidia still being abstricted from the margin of the disc.
F. Mature apothecium.
G, H, I. Primary synnemata.
J. Branched form of secondary synnema.

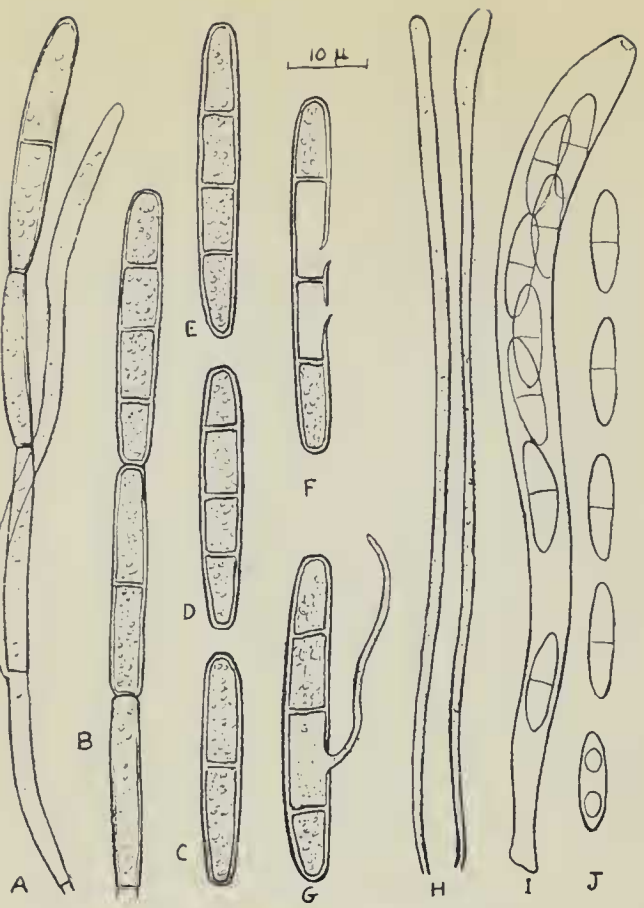

FIG. 5. *Symphyosirinia angelicae.*
A. Synnematal hyphae with conidia developing from the tips.
B. Three conidia from tip of sporulating hypha.
C. 1-septate conidium.
D, E. Mature conidia.
F. Old conidium after two cells have germinated.
G. Germinating conidium.
H. Paraphyses.
I. Ascus with spores.
J. Ascospores.

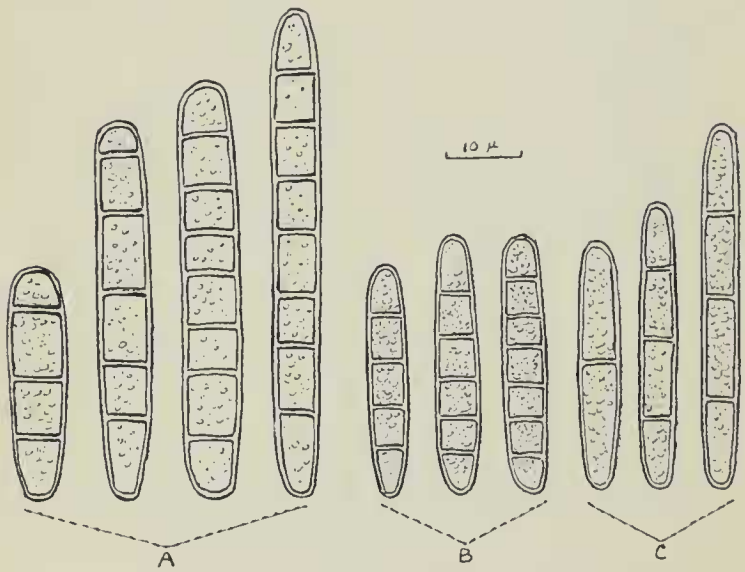

FIG. 6.
A. Conidia of *Symphyosira parasitica* Mass. & Crossl. (from the type collection).
B. Conidia of *Symphyosira rosea* Keissler.
C. Conidia of *Symphyosirinia angelicae.*
(All magnified to the same degree for comparison).

SYMPHYOSIRINIA, A NEW GENUS OF INOPERCULATE DISCOMYCETES.

By E. A. Ellis.

On 31st May, 1942, fallen fruits of the marsh bedstraw, *Galium palustre* L., in fen on Middle Marsh, Wheatfen Broad, Surlingham, Norfolk, were found parasitised by a fungus bearing white slimy heads of multiseptate, setose conidia formed in chains from branched hyphae in short synnemata. This fungus was classified provisionally as a hitherto undescribed hyphomycete of the genus *Symphyosira* Preuss, although it differed from the known species in that genus in possessing conidial setae. Subsequently, prolonged studies of the living fungus were made in the field and by means of controlled inoculation experiments. It was discovered that in the course of development, the short primary synnemata were succeeded by secondary long-stalked synnemata and by apothecia of an inoperculate discomycete having affinity with the Helotiales.

Parallel observations were made on another Norfolk fen fungus found to produce primary and secondary synnemata of *Symphyosira* type, followed by apothecia, on fallen fruits of wild angelica, *Angelica sylvestris* L. In the present paper, a new genus, *Symphyosirinia*, is proposed to accommodate these discomycetes.

Symphyosirinia E. A. Ellis gen. nov.

Apothecia e synnematibus specierum Symphyosirae exorientia, cupulata stipitata. Excipulum prosenchymatosum, totum ex hyphis homomorphis subparallelis constans. Asci inoperculati, 8-spori. Ascosporae uniseriatae vel in dimidio distali asci biseriatae, demum 1-septatae ; paraphyses cylindricae.

Typus generis : *S. galii* E. A. Ellis.

Apothecia originating from synnemata of a *Symphyosira*, cupulate, stipitate ; excipulum prosenchymatous, composed of uniform subparallel hyphae throughout. Asci inoperculate, 8-spored ; ascospores uniseriate or becoming biseriate in the distal half of the ascus, ultimately becoming 1-septate, hyaline ; paraphyses cylindrical. Type species *S. galii* E. A. Ellis. Structurally akin to *Gloeotinia* Wilson, Noble & Gray, but differing in the apothecia originating from synnemata and in occurring on dicotyledons.

Symphyosirinia galii E. A. Ellis sp. nov.

Synnemata primaria sessilia vel substipitata, alba ; secondaria carnosa, clavata, 1–3 mm. alta. Conidia cylindrica, obtusa, hyalina usque pallide olivacea, 7–9-septata, 35–60 × 5–7 μ, in cellula distali setas 1–3 usque ad 50 μ longas gerentia. Apothecia e synnematibus primariis senescentibus erumpentia, stipitata, cupulata, 1.0–1.5 mm. diametro, ad 3 mm. alta. Discus planus, immarginatus, pallide griseo-brunneus, asci cylindrico-clavati, 8-spori, 100–127 × 7–9 μ, poro iodo tincto haud caerulescente. Ascosporae uniseriatae, ovoideae, continuae vel 1-septatae, hyalinae, 10–15 × 3.5–4 μ. Paraphyses cylindricae, 2 μ latae. Excipulum prosenchymatosum. Habitat in fructibus caducis *Galii palustris*.

Synnemata of two kinds, primary and secondary. Primary synnemata sessile or substipitate, white, composed of closely adhering branching hyphae abstricting from their tips phragmosporous slime-spores in basipetal succession. Conidia cylindrical, 35–60 × 5–7 μ, obtuse at each end, hyaline to faintly olivaceous with granular contents, 7–9-septate at maturity and normally bearing 1–3 setae up to 50 μ long on the distal cell. Secondary synnemata fleshy clavate, 1–3 mm. high, the stalks white or yellowsih white, composed of long interwoven hyphae bearing slimy conidia similar to those of the primary synnemata ; conidia white to rosy-white in the mass. Apothecia developed from the basal tissue of senile primary synnemata ; disc flat or slightly convex, immarginate, light greyish brown or, rarely, white, 1.0–1.5 mm. across ; receptacle cupulate, concolorous with the disc or with a paler pruinose margin, seated on a flexuose, cylindrical or obconical, often minutely hairy stalk, 300–700 μ thick and up to 3.0 mm. long. Excipulum composed throughout of parallel, thin-walled, non-gelatinised hyphae, *c.* 5 μ wide, with light brown walls, not clearly differentiated from the hyphae of the flesh and commonly running out at their tips into slender, obtuse, thin-walled septate hairs. Asci cylindric-clavate, 100–127 × 7–9 μ, 8-spored, without croziers, pore in fresh specimens not blued by iodine ; ascospores uniseriate, ovoid, 10–15.0 × 3.5–4.0 μ, hyaline, with granular contents, continuous or ultimately 1-septate, not constricted at the septum ; paraphyses numerous, cylindrical, 2 μ wide, rounded and occasionally forked at the tip.

Parasitic on fallen mericarps of *Galium palustre* L., in fens, Norfolk, England. Type : apothecia and secondary synnemata, Wheatfen Broad, Surlingham, Norfolk, October, 1956 ;

primary synnemata, from the same locality, collected 31st May, 1942 : deposited in Herb. Royal Botanic Gardens, Kew.

S. galii was abundant in its type locality from 1942 to 1949. Primary synnemata were found in every month of the year ; secondary synnemata and apothecia were seen in the open only in September and October, although some were produced at other seasons in the course of inoculation experiments. In the autumn of 1949 the fungus received a severe setback in its natural habitat owing to the almost complete failure of the marsh bedstraw to produce fruits in that year. Annual searches made for *S. galii* proved unsuccessful from 1950 to 1955 inclusive ; but in June, 1956, the fungus was rediscovered at Wheatfen. *S. galii* occurs typically in low-lying, frequently-flooded fens, where its host, the large-fruited octoploid marsh bedstraw grows in a straggling fashion amongst reeds and sedges. The phanerogamic vegetation of a habitat of *S. galii* on Home Marsh, Wheatfen Broad, June, 1956 was as follows :

abundant :

Carex elata ... ... Tufted Sedge
Galium palustre ... ... Large Marsh Bedstraw
Phragmites communis ... Common Reed

common :

Equisetum palustre ... Marsh Horsetail
Eupatorium cannabinum Hemp Agrimony
Mentha aquatica... ... Water Mint
Myosotis palustris ... Water Forget-me-not
Oenanthe fistulosa ... Water Dropwort

frequent :

Agrostis stolonifera ... Creeping Bent
Angelica sylvestris ... Wild Angelica
Caltha palustris ... ... Marsh Marigold
Calystegia sepium ... Bellbine
Carex riparia ... ... Great Pond Sedge
Cladium mariscus ... Sedge
Filipendula ulmaria ... Meadowsweet
Iris pseudacorus... ... Yellow Flag
Juncus subnodulosus ... Fen Rush
Lysimachia vulgaris ... Yellow Loosestrife
Lythrum salicaria ... Purple Loosestrife

occasional :

Berula erecta	...	Narrow-leaved Water Parsnip
Carex appropinquata	...	Small Tussock Sedge
Glyceria maxima	...	Reed Sweet-grass
Peucedanum palustre	...	Milk Parsley
Ranunculus repens	...	Creeping Buttercup
Rumex hydrolapathum	...	Great Water Dock
Stachys palustris	...	Marsh Woundwort
Thalictrum flavum	...	Meadow Rue
Valeriana officinalis	...	Valerian

Ripe fruits of the marsh bedstraw commonly become lodged on the lower leaves of associated marsh plants, especially those of *Carex elata* dipping in the water. The shed mericarps reach various levels subsequently as flood waters rise and fall. Spores of the parasitic fungus are dispersed by water from infected fruits of the previous year and make contact effectively with the new season's fruits where tidal freshwater flooding is of frequent occurrence, as it is in the " rond " fens of the Yare Valley and some other parts of the Norfolk Broads. The long hair-like appendages on the conidia of *S. galii* resemble those of many aquatic hyphomycetes ; their biological function is not known, but they give stability and buoyancy to spores suspended in water and increase the chances of spores becoming entangled with vegetation ; it is probable that they also conserve moisture when spores are left high and dry after floods.

Inoculation Experiments.

On 6th February, 1944, 25 mericarps of *Galium palustre* were inoculated with conidia from primary synnemata of *Symphyosirinia galii* by being dipped in a spore-suspension. They were placed on sterilised silver sand wetted with boiled rain-water, in a petri-dish, and kept in a rather dim, cool room. On 24th March, 16 inoculates bore 1 to 15 primary synnemata of the pathogen and three unaffected mericarps had begun to germinate. By 6th April, 22 inoculates bore synnemata (i.e., all except the three which had germinated). By 21st June most of the synnemata had ceased active sporulation and had become reduced to yellowish, horny, basal stumps. On this date a single long-stalked fruiting body was seen to be growing

from one synnema base on each of two mericarps. By 28th July, 21 of the inoculates had produced from 1 to 7 secondary, long-stalked synnemata and immature apothecia. Further experiments were carried out on similar lines in 1944 and 1945, except that in most cases the inoculates were kept on strips of moistened cellulose wadding instead of on silver sand. It was found that under varying conditions of saturation, illumination and temperature, the primary synnemata first appeared on the mericarps 21–60 days and most commonly 33 days after inoculation, at room temperatures, in a moderate light, when the mericarps were well wetted. The sporulation of primary synnemata usually continued for about two months ; this was followed by a resting period of from three to five weeks, after which, secondary synnemata and apothecia grew from the basal stumps of the primary synnemata. Secondary synnemata began to sporulate about four weeks after making their first appearance. Apothecia took from two-and-a-half to three months to attain maturity from the time they first appeared. In some cases the development of apothecia became arrested before maturity and stalked synnemata were produced from their unexpanded tips. " Clean " mericarps were used as controls throughout these experiments and in most cases 100 per cent germinated successfully, although it was not unusual for a proportion of them to germinate three months or more after the majority. In no instance was a mericarp found to germinate after synnemata of *S. galii* had developed on it ; in a very few cases radicles emerged from inoculated mericarps before synnemata had appeared, but death of the host occurred very shortly afterwards as the fungus developed.

S. galii has not been seen growing on any substrate other than fallen fruits of the type host under natural conditions ; but in November, 1944, 68 out of 75 mericarps of *Galium uliginosum* were inoculated successfully with the *Symphyosirinia* conidia and in due course produced primary and secondary synnemata ; no apothecia were formed. In January, 1945, this experiment was repeated and the inoculation of a further 25 mericarps of *G. uliginosum* proved 100 per cent successful ; again, no apothecia were produced. Fruits of *G. uliginosum* are much smaller than those of the normal host and this may account for the parasite's failure to produce apothecia on them.

S. galii has been collected outside its type locality on two occasions, viz., at Rush Hills, Hickling Broad, Norfolk, 10th July, 1945, and at Strumpshaw Broad, Norfolk, 3rd April, 1949. Five specimens with white apothecia were seen at Wheatfen in October, 1956.

The *SYMPHYOSIRINIA* parasitising fallen mericarps of *ANGELICA SYLVESTRIS*.

Whereas no historical complications were encountered in dealing with *S. galii*, the second fungus considered here has been assumed by various authors from 1882 onward to be of the same species as a discomycete described by Bulliard in 1784 as *Peziza subularis*. Bulliard described his fungus as " Peziza tenuis, fragilis, glabra, lateritia, in stipitem longissimum et gracilem desinens ; craterâ cyathoideo-cupularis " and stated that it grew on half-decayed fruits of the annual sunflower (*Helianthus annuus*) and tripartite bur-marigold (*Bidens tripartitus*) in spring and autumn, in fields, woods and gardens in France. He figured it growing unmistakably on these fruits and while mentioning that it was very variable in size, failed to provide measurements and gave no details of its microscopic characters. Its colour he described as " d'un rouge de brique."

In October, 1879, Rev. J. Keith collected specimens of a discomycete growing on fallen mericarps of *Angelica sylvestris* at Forres, Scotland. These were recorded by Stevenson, 1882, as " *P.* (*Hymenoscypha*) *subularis* Bull." and measurements of the ascospores were given as 17–20 × 4–5 μ. Phillips, 1893, amended Bulliard's description of *P. subularis* to include details of Keith's Scottish specimens and it is important to note that he pointed out that in the Forres material examined by him, the exterior of the apothecium was nearly white and the disc very pale brown (not brick red, as described for Bulliard's fungus). Specimens collected by Rev. J. Keith at Forres, October, 1879, are preserved in Herb. W. Phillips at the British Museum (Natural History). When I examined them in 1947, they consisted of three mericarps of *Angelica sylvestris* bearing respectively (a) one mature apothecium and one immature apothecium, (b) one mature apothecium and one secondary synnema of a *Symphyosira* with 3-septate conidia and (c) one mature apothe-

cium and one immature apothecium with *Symphyosira* conidia borne on the peripheral hyphae.

I have no doubt that Keith's specimens represent a fungus of the same species as the fungus which has been found growing commonly on fallen fruits of *Angelica sylvestris* in Norfolk in recent years and which I have studied intensively since 1940. On the evidence now available, it appears improbable that Stevenson, Phillips and others were correct in referring Keith's fungus to *Peziza subularis* Bull. The discs of the apothecia occurring on *Angelica* fruits are not truly cyathiform ; the apothecia are not brick red and it has not been found possible to infect fruits of *Bidens tripartitus* or *Helianthus annuus* with the *Angelica* fungus. A new name is proposed here for the Forres and Norfolk material and the British fungus is described afresh as follows :

Symphyosirinia angelicae E. A. Ellis sp. nov.

Synnemata primaria sessilia, alba vel pallide rosacea ; secondaria carnosa, clavata, 3–27 mm. alta. Conidia cylindrica, obtusa, hyalina usque pallide olivacea, 1–3 septata, 23–47 × 4–6 μ, haud setosa. Apothecia stipitata, cupulata, 2–4 mm. diametro, ad 30 mm. alta. Asci cylindrico-clavati, 95–110 × 6.5–8 μ. 8 spori, poro iodo tincto haud caerulescente. Ascosporae uniseriatae vel biseriatae, ovoideae, 1-septatae, hyalinae, 12–20 × 3.5–5 μ. Paraphyses cylindricae, 1–2 μ latae. Excipulum prosenchymatosum. Habitat in fructibus caducis *Angelicae sylvestris*.

Synnemata of two kinds, primary and secondary. Primary synnemata sessile, white or rosy white, composed of closely adhering branching hyphae abstricting from their tips phragmosporous slime-spores, which are produced in basipetal succession. Conidia cylindrical, 23–47 × 4–6 μ (commonly 30–37 × 5–6 μ), obtuse at each end, hyaline (faintly olivaceous when old), with granular contents, 1–3-septate at maturity and without setae. Secondary synnemata fleshy clavate, 3–27 mm. (commonly 6–12 mm.) high, the stalks white or yellowish white, 0.5 mm. thick, composed of long interwoven hyphae bearing slimy conidia similar to those of the primary synnemata ; conidia rosy-white in the mass. Apothecia usually solitary, developed from the bases of senile synnemata ; disc saucer-shaped, sometimes becoming flat, immarginate or surrounded by a fringe of conidia borne on synnematal hyphae externally until the apothecium is fully developed, light brown, 2–4 mm. across ;

receptacle cupulate, paler than the disc, seated on a flexuose, cylindrical stalk, slightly attenuated towards the base, smooth or with a few minute hairs, 300–800 μ thick and 5–30 (commonly 10) mm. high. Excipulum composed throughout of parallel, thin-walled, non-gelatinised hyphae, *c.* 5 μ wide, not clearly differentiated from the hyphae of the flesh ; in some specimens the outermost hyphae abstrict conidia at the periphery of the disc. Asci cylindric-clavate, 95–110 × 6.5–8.0 μ, 8-spored, without croziers ; pore in fresh specimens not blued by iodine. Ascospores uniseriate or biseriate in the upper half of the ascus, ovoid, 12–20 × 3.5–5.0 μ, hyaline, becoming 1-septate, not constricted at the septa ; paraphyses numerous, cylindrical, 1–2 μ wide, rounded and sometimes very slightly clavate.

Parasitic on fallen mericarps of *Angelica sylvestris* in marshes, England, Scotland ; conidial synnemata also occurring naturally on fallen mericarps of *Peucedanum palustre* and *Oenanthe fistulosa* in fens, Norfolk and produced by artificial inoculation on fruits of other Umbelliferae. Type material deposited in Herb. Kew : primary synnemata, on *Angelica sylvestris*, Parish Marsh, Wheatfen Broad, Surlingham, Norfolk, 25th February, 1943 ; secondary synnemata, and apothecia, on the same host, Wheatfen Broad, 12th October, 1956.

Observations made on *S. angelicae* in Norfolk, 1940–56 :

In October, 1940, stalked synnemata of a *Symphyosira* on fallen mericarps of milk parsley (*Peucedanum palustre*) were collected from a sedge fen at Wheatfen Broad, Norfolk. Between 1941 and 1956 numerous collections of this fungus were made on the same host fruits in fens of the Yare Valley and on fallen fruits of *Angelica sylvestris* in fens and water meadows in many places in Norfolk. Apothecia of an inoperculate discomycete associated with the *Symphyosira* and in some cases palpably developing from its synnemata were found at Wheatfen Broad and Old Lakenham in October, 1941 and in numerous East Norfolk localities during October and November in subsequent years.

The life history of this fungus was investigated by means of more than fifty inoculation experiments conducted mainly in 1943–45. It was found that sessile primary synnemata developed on new mericarps of *Angelica sylvestris* from the 26th day onward, following inoculation with conidia taken

from secondary synnemata on the old fruits. Primary synnemata commonly appeared on 100 per cent of the inoculates by the end of two months. These synnemata continued to produce conidia actively for two to three months, after which, they became quiescent. Later, stalked secondary synnemata and in some cases apothecia developed from the basal tissues of the primary synnemata. The secondary synnemata usually commenced sporulation in four to five months after the original inoculation.

Mericarps of *A. sylvestris* were inoculated successfully with conidia taken from those of *Peucedanum palustre* and *vice versa ;* but in each case the percentage of infection was less and the growth of the fungus slower when the host species was changed. Mericarps of other species of Umbelliferae were inoculated with the conidia and in many cases the fungus produced sporulating primary and secondary synnemata on them ; but apothecia were seen only on *Angelica sylvestris*. Some of the information obtained in the course of these experiments is given below.

Mericarps of Umbelliferae were inoculated by dipping them in suspensions of conidia of *Symphyosirinia angelicae ;* they were placed on strips of cellulose wadding saturated with boiled rain water and kept under observation in petri dishes and glass tubes in a moderate light at room temperatures. Ten or more mericarps were inoculated in each instance and an equal number of controls was kept. No *Symphyosirinia* was found to develop on any of the controls, which in most cases produced healthy seedlings in due course.

(a) mericarps inoculated with conidia from *Angelica sylvestris*
(b) mericarps inoculated with conidia from *Peucedanum palustre*.

Inoculate	Infection	Period of observation
Angelica archangelica	(b) 60%	300 days
Anthriscus sylvestris	(b) Nil	133 ,,
Apium dulce	(b) 37%	249 ,,
Cicuta virosa	(a) 50%	349 ,,
Cicuta virosa	(b) 80%	238 ,,
Conium maculatum	(a) Nil	196 ,,
Conium maculatum	(a) Nil	184 ,,
Conium maculatum	(b) Nil	184 ,,

Inoculate	Infection		Period of observation
Conium maculatum	(b)	Nil	50 days
Conium maculatum	(b)	10% (synnemata sterile)	199 ,,
Daucus carota sativus	(b)	10% (synnemata sterile)	238 ,,
Heracleum sphondylium	(a)	Nil	335 ,,
Heracleum sphondylium	(a)	50% (synnemata sterile)	260 ,,
Heracleum sphondylium	(b)	Nil	244 ,,
Heracleum sphondylium	(b)	Nil	134 ,,
Oenanthe fistulosa	(a)	Nil	249 ,,
Oenanthe fistulosa	(b)	Nil	134 ,,
Oenanthe fistulosa	(b)	40%	418 ,,
Oenanthe lachenalii	(a)	30%	249 ,,
Oenanthe lachenalii	(a)	50%	249 ,,
Oenanthe lachenalii	(b)	80%	341 ,,
Pastinaca sativa	(a)	70%	336 ,,
Petroselinum crispum	(b)	90%	238 ,,
Smyrnium olusatrum	(a)	100%	349 ,,
Smyrnium olusatrum	(b)	100%	238 ,,

Sporulating primary and secondary synnemata were obtained where positive infection occurred except as indicated above.

In all cases, mericarps failed to germinate successfully when infected by *S. angelicae.*

It was observed that the sporulating synnemata of both *S. galii* and *S. angelica* remained free from invasion by other fungi, bacteria and even myxomycetes. In their natural habitat they were found to be attacked by mycophagous mites to a small extent and on one occasion swarms of amoebae were discovered to be present in a sliming primary synnema head of *S. galii.* Large numbers of molluscs are present in the fens where these fungi grow (see A. E. Ellis, " The Mollusca of a Norfolk Broad, *Journ. Conch.* 21, 224–243, 1941), but both kinds of *Symphyosirinia* are little troubled by them ; on two occasions the small snail *Euconulus fulvus* has been seen to devour conidia of *S. galii. S. angelicae* has been found producing secondary synnemata and apothecia in abundance where the slug *Agriolimax agrestis* and the snail *Ashfordia granulata* were particularly numerous.

In view of the fact that Bulliard's *Peziza subularis* was found growing on fruits of *Helianthus annuus* and *Bidens tripartitus,*

attempts were made in 1944–45 to infect fruits of these two species by inoculating them with spores of the *Angelica* fungus. Ten mericarps of *H. annuus* and ten of *B. tripartitus* were dipped in suspensions of conidia taken from secondary synnemata of *S. angelicae* on *Angelica sylvestris* and ten of each were inoculated similarly with conidia from mericarps of *Peucedanum palustre*. The inoculates were kept under observation for 339 days with a negative result in each case.

Symphyosirinia angelicae and *Symphyosira parasitica*.

At this point it is relevant to mention that on 25th September, 1899, a stalked *Symphyosira* was found growing on fallen fruits of hemlock (*Conium maculatum*) and on one mericarp of hog-weed (*Heracleum sphondylium*) in a wood on the borders of Sutton, near Askern, Yorkshire, by A. Clarke. Massee and Crossland, *Naturalist*, 1904, p. 6, gave a detailed account of this fungus and described it as a new species, *Symphyosira parasitica*. The synnemata were described as " pallid, 6–14 mm. high " and the conidia as " cylindrical, 3–5-septate, hyaline, 40–70 × 6–8 μ." No figure was published, but good specimens of the original material exist in Crossland's herbarium at Kew. In a sample taken at random from this collection I found that 35 out of 43 conidia were 7-septate ; three had 5 septa and the remainder, 3 septa ; the dimensions of the conidia I found to be 30–61 × 6–8 μ (exceptionally 10 μ). While superficially *S. parasitica* bears some resemblance to the secondary synnemata of *S. angelicae*, it has constantly larger conidia with more numerous septa in them than those of the latter. This fact, taken together with the negative results of attempts made to infect mericarps of *Conium* and *Heracleum* with *S. angelicae* leads one to the conclusion that two distinct species of fungi are being dealt with. *S. parasitica* has not been rediscovered in Yorkshire since Massee and Crossland described it ; but while this paper was in proof, I found it growing on fallen mericarps of *Pimpinella major* L. in a clayey meadow at Torr, Yealmpton, S. Devon, 27th October, 1956.

Symphyosira Preuss.

The genus *Symphyosira* was erected by Preuss : F. Hoyersw., n. 60, *Linnaea* XXV, 742, 1852, for a single species which he

named *S. lutea*, one of the Fungi Imperfecti (Moniliales : Stilbaceae : Hyalophragmiae). The chief generic characters given were the possession of fleshy clavate synnemata, coalescing at the base and separating above into chains of conidia, 1–3-septate. *S. lutea* Preuss was described from material growing on rotten pine wood in Germany ; it was characterised as having clavate synnemata, yellowish to white above, with the conidia cylindrical, hyaline (white), 1–3-septate. No figure was provided and no measurements were given. Keissler (1913) found Preuss's original material useless as a type specimen and the fungus does not appear to have been collected again under this name.

Karsten (1891) described as a second species *S. alba*, from a specimen found growing on old wood, believed to be *Pinus*, in Finland. He characterised it as having the synnemata few or gregarious, fleshy, stipitate-clavate, smooth, with the heads sphaeroidal to lentiform, white, 0.1–0.3 mm. across and with the stalks short and yellowish ; he described the conidia as growing in chains, cylindrical, obtuse at the apex, straight, hyaline, pluriguttulate and measuring usually 36 × 3 μ. Keissler (1913) considered *S. alba* Karsten to be a synonym of *S. lutea* Preuss. Karsten's type specimen could not be found and "*S. alba*" does not appear to have been collected again. Massee and Crossland (1904) were the next to describe a *Symphyosira* (*S. parasitica*), referred to earlier in this paper. Keissler : Uber die Gattung Symphyosira. *Myc. Centr.* Bd. ii, Heft 7, 322, 1913, described a further species, *S. rosea*, collected from woodland soil in the Tyrol. It was characterised by the following features : synnemata stalked-capitate, simple, fleshy, smooth, the stalks pale (brownish under the microscope), slender, curved above, 3–5 × 0.2 mm., the heads distinctly sphaeroid, pale rose-coloured and about 1 mm. in diameter ; conidia cylindrical, obtuse at the apex, straight, concatenate, granular, non-guttulate, 3–6 (commonly 4–5)-septate, subhyaline and measuring 27–33 × 6 μ. In 1946, Dr. F. Petrak informed me that type material of *S. rosea* existed in the herbarium of the Naturhistorisches Museum, Wien.

In 1867, Crouan, *Florule du Finistere*, p. 13 described a hyphomycete found growing on dead fruits of *Angelica sylvestris* in France and named it *Fusidium angelicae ;* it was transferred to *Cylindrium* by Saccardo : *Sylloge Fungorum* iv, 38, 1886. From

the description, it appears likely that Crouan's fungus consisted of primary synnemata of *Symphyosirinia angelicae*, examined at an early stage, before septa had been formed in the conidia.

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